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# Research article

# Competing actors in the climate change arena in Mexico: A network analysis



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#### ABSTRACT

This paper analyzes the actors in the climate change arena and their influence in directing Mexico toward policies that decrease greenhouse gas emissions, such as the carbon tax and climate change law. The network analysis of the agreement of these laws and public policies in Mexico is a lesson for any country that is in the process of designing and adopting environmental laws. The research is performed using a network analysis that is derived from interviews with various main actors and a discourse analysis of the media. Results show that actors do not coordinate their efforts—they meet frequently but in different inter-ministerial commissions—and do not enforce the same policies. The actors in the industry have formed strong coalitions against the carbon tax and the General Law on Climate Change, whereas international institutions have formed coalitions that support these policies and laws.

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#### 1. Introduction

Climate change is one of the most important environmental threats that countries are confronting. Mexico is considered a Non-Annex 1 country in Kyoto's Protocol; although there is no compulsory country reduction target in this classification, Mexico has made some efforts in the legal and political arenas to mitigate climate change. Its most important achievement has been the approval of the General Law of Climate Change (GLCC) in 2012, published in the official diary (DOF, 2012), making Mexico the first developing nation to enact such a law. It also imposed an average carbon tax of \$3.50 per ton of CO<sub>2</sub> equivalent on domestic emissions and, in September 2014, announced the goal of obtaining 35% of its energy from renewable sources by 2024.

According to Mexico's Special Program of Climate Change (SPCC) described in the official diary (DOF, 2009), Mexico is grouped

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among the countries with a high Gross Domestic Product, high population, and high emissions<sup>1</sup> and has set an ambitious target: to decrease greenhouse gas (GHG) emissions by half between 2000 and 2050. This goal implies a decrease from 664 to 339 of MtCO<sub>2</sub>e; the projections indicate that, with no intervention, Mexico will reach the level of 1089 of MtCO<sub>2</sub>e by 2050.<sup>2</sup>

These agreements represent a challenge for Mexico, whose energy infrastructure is insufficient and outdated, and whose energy services have historically been provided by government monopolies. The Mexican economy is highly dependent on oil prices and remittances, as well as on fossil fuels for production and, therefore, for economic growth. Reducing the carbon intensity of the economy is a considerable challenge since fossil fuels account

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<sup>&</sup>lt;sup>1</sup> This group includes Japan, Germany, the USA, South Korea, the UK, Brazil, Italy, France, Indonesia, Turkey, Russia, and India, among others.

<sup>&</sup>lt;sup>2</sup> The GHG target was part of Mexico's Copenhagen Pledge commitments, although this agreement was not legally binding. In 2010, Mexico emitted 748 MTCo<sub>2</sub>e that contributed to 1.4% of global emissions and that are mainly derived from burning fossil fuels and from productive and transformation oil processes.

for 89% of Mexico's energy supply (OECD, 2013). Energy service providers have long been state-owned enterprises; in the case of gasoline, the only provider is the Mexican oil company PEMEX, a government monopoly. The 20 natural gas providers have a concession from the government, and they provide gas at a higher price for residential use than for industrial use.

Electricity generation through the private sector has historically been an issue that has divided opinion in Congress. Left-wing factions have advocated for national sovereignty on this issue and have taken a position against any private interference. By contrast, center-right factions in recent years have been more flexible in their position and have created instruments and regulatory frameworks that allow for co-participation. Other developing countries, like Turkey, which is in the same group as that of Mexico, according to SPCC, have adopted reforms that are more open to private capital, both national and foreign, in all energy sectors, including electricity production and distribution (Pehlivan and Demirbas, 2007), which is far too difficult in the case of Mexico given the sovereignty discourse of the left wing.

#### 1.1. Climate change system

In 2008, Mexico designed the Climate Change National System, adopting its first Special Program on Climate Change in 2009. The current environmental sector is headed by the Secretariat of Environment and Natural Resources (SEMARNAT), followed by deconcentrated and decentralized bodies: the National Water Commission (CONAGUA); the National Institute of Ecology and Climate Change (INECC, since 2014); the Federal Attorney for Environmental Protection (PROFEPA); the National Commission of Natural Protected Areas (CONANP); the National Forestry Commission (CONAFOR); the Mexican Institute of Water Technology (IMTA); and the National Commission for the Knowledge and Use of Biodiversity (CONABIO). All of these institutions contribute to and converge with the federal climate change policy of Mexico.

# 1.2. The GLCC

In 2012, the Mexican Congress passed the GLCC, which came into force in June of that year. The GLCC is the main legal and political instrument for addressing climate change. It incorporates a long-term, systematic, decentralized, participatory, and integrated approach to adaptation and mitigation actions and establishes institutional mechanisms as needed. The inter-ministerial commission on climate change, which incorporates all ministries of the federal government, was strengthened under the GLCC; the federal government is in charge of formulating and conducting the national climate change policy on the basis of clearly defined principles, of which social co-responsibility significantly stands out (SEMARNAT, 2014b). Key actors meet in the commissions created under the GLCC.

# 1.3. The carbon tax

In January 2014, Mexico's Congress passed a fiscal reform that imposed a carbon tax on CO<sub>2</sub> emissions from burning fossil fuels in order to discourage activities that harm the environment and to improve air quality and reduce respiratory illness (DOF, 2013b). The justification for this tax was to internalize the social costs of the negative externalities of CO<sub>2</sub> emissions from fossil fuels and to incentivize the use of clean renewable energies (DOF, 2013a; SEMARNAT, 2014a). The negotiation of the energy reform occurred in an accelerated way. The laws that regulate the country's energy sector were created in just under a year. Despite the great diversity in legislative power interests, the current administration has

managed to pass several high-stakes reforms, specifically energy, fiscal, labor, and education reforms. These achievements have come with challenges in the global economy and the social situation in the country. All of these reforms affect the 121 million people who live in Mexico, particularly those 55.3 million who live in poverty (Chapa and Ortega-Diaz, 2017).

#### 1.4. Political context

Mexico is a republic of 32 states and 2457 municipalities. There are presidential elections every six years and state and municipal elections every six and three years, respectively, with no reelection. This constant change of power is a barrier to agreements concerning long-term public policies, among other consensuses (Nelson, 2010). Moreover, the legislative power that is represented by the Senate and Deputy Chambers has become more plural. The three main parties have enough votes to approve or reject legal initiatives; therefore, to reach a consensus, the use of coalitions and bargaining power is always paramount in the commitments among the parties.

# 1.5. Actors

In this panorama, the Mexican government has conducted major reforms that clash with opposing views due to multilevel governance, economic and political interests, and international commitments. The main actors that are analyzed in this study are the actors who take decisions at a national level and influence concerning energy regulations, climate change, and GHG emissions, as well as the political actors and agents of change who could improve the economic conditions of the population and decrease emissions without damaging the economy. A complete analysis of the main actors who have participated in the planning, decisionmaking processes, and policy design of the GLCC and the carbon tax requires a review of the coalitions that are for and against these policies. In the case of Mexico, the laws are highly transparent and allow us to identify the stakeholders involved in the decision process, in contrast to (Lienert et al., 2013), who started by finding the main actors first. Nevertheless, we combine a social network analysis with a media analysis of the positions of these actors in the process through which laws were designed, rewritten, passed onto Congress, and finally adopted.

Reaching agreements and approving laws and policies that converge to mitigate climate change effects under a challenging socio-political framework require coordination that not all developing countries attain. How did Mexico manage to adopt a carbon tax and approve the GLCC? Our objective is to find the answer by analyzing the network of actors who were involved and how their arguments influenced the negotiations to achieve agreements on the laws that will help to reach the GHG emissions targets. The analysis is organized as follows. Section 2 presents the methodology and section 3 the results. In section 4, we discuss the findings, and the conclusion is presented in section 5.

### 2. Data and methods

The present research documents the actors and political interactions that made possible the adoption of both policies—the carbon tax and the GLCC—placing Mexico ahead of many developing countries in terms of legislation. Three main tools were used for this purpose: a questionnaire to guide the interviews with the main actors, a discourse analysis of these actors on the media, and a network analysis.

#### 2.1. Interviews

A questionnaire was designed to guide the interviews and analyze the contributions of different actors affecting GHG emissions. The questionnaire covered questions concerning linkages that the actors had to other actors at the institutional and personal levels and the potential conflicts of interest that arise from these interactions (see, for instance, (Reed et al., 2009); the questionnaire also considered the policies in which the actors are involved (the carbon tax, GLCC, and renewable energy), the types of engagement in the policy process, the objectives that an institution has regarding these policies, and the resources that are assigned to these interactions (i.e., human, financial, time, etc.). The sample of interviewees was determined according the National System of Climate Change (NSCC), established in the GLCC, which involves representatives from federal government, subnational government, private sector, academia, and NGOs. Actors were asked to respond to the interview as representatives of their respective institutions, not with their personal views. By law the NSCC is made up of 6 ruling bodies: Intersecretarial Commission of Climate Change (ICCC), INECC, Congress, Climate Change Council (3C), and Association of authorities in the States (CONAGO) and in Municipalities (CONAMM). We interviewed all groups described in section 1.1 and the members of each ruling body, except CONAGO and CONAMM; but CONAGO's arguments were taken into account in the newspapers. CONAMM did not have an active role in the negotiations of the laws during the period of analysis.

The questionnaire was conducted in two stages. The first stage was the pilot stage. Fifteen actors were invited, of which six accepted and were visited in their office. Some of the non-respondents identified other actors (snowball effect). In the second stage, we invited 14 actors; some of these actors were interviewed, while others identified still other actors, so that, in the end, 22 actors responded in this stage. Of the 28 total respondents, we interviewed 24 actors face-to-face, for approximately one hour each, during which time profound and extended information was obtained; two other actors responded by email after we made clarifications over the phone.

# 2.2. Discourse analysis

To enhance the analysis of the actors' networks, a newspaper review was conducted for the period 2008–2015 to examine the discourse on the design, changes, agreements, and disagreements on the carbon tax and GLCC. The newspaper articles were selected from the most recognized media sources. In Mexico's case it has two main newspaper sources, those being Reforma and Universal; quite a difference from developed countries which have several important newspaper media sources. On the basis of the same sample of actors, the most important representatives were chosen in the newspaper media that cover national, state, and local news. In total, 105 news items about the GLCC were reviewed and 79 about the carbon tax. The discourse was coded exactly the same as in the transcripts, and the procedure is described in section 2.4. This complementary part strengthens the face to face discourse interviews; making the analysis more robust.

#### 2.3. Combination of interviews and discourse analysis

From the two datasets, actors who provided discourses,

arguments, and positions on the governmental, political, and legal actions were grouped according to the arena they represented: Academia, Civil Society Organization, Consulting Firm, Energy Sector, Financial Sector, Government, Industry, International Organization, Media, National Party, NGO, Parliamentarian, and Research Institutes. The actors, their classifications, and their acronyms can be consulted in the appendix. Acronyms are used through all the results sections to facilitate reading.

# 2.4. Codification of arguments

In the current analysis, political barriers are studied according to (Kenis and Schneider, 1991) and (McClurg and Young, 2011). We decided to mark an actor's position as positive or in favor if it completely agreed with the national policy (GLCC or carbon tax). We theorize the discourses on the carbon tax and GLCC separately as discourse networks, following (Leifeld and Haunss, 2012) and (Leifeld, 2013). Each node of the discourse network is an actor involved and the arguments proffered. Using this method, an initial outcome from the interviews and newspapers review is that the same actor could participate simultaneously in two or three policies. In the time that the process of creating laws and programs for each policy lasted, actors' positions changed, sometimes because there were laws/policies/reforms that favored the position of the actor. Therefore, the resulting network contains two separate classes of node, namely, actors (circles) and arguments (squares). According to (Borgatti and Everett, 1997), the discourse networks belong to the class of affiliation or bipartite networks, in which the links solely exist between the nodes of different classes. This link or edge between two nodes is formed when an actor uses an explicit argument in a statement. The same actor could agree with some positions and disagree with other positions that involve the same policy. Other actors had a neutral opinion concerning the topics in general, meaning that they did not provide a position on the national policies being reviewed but provided an opinion regarding the matter being discussed. These neutral positions were removed from the actors' network database. (Borgatti and Everett, 1997) state that theorizing legitimation discourse as affiliation networks allows the identification of the discursive relationships between actors that arise when different actors use the same arguments or make the same claims. These connections between actors should be interpreted as discourse coalitions, as conceptualized by (M. Hajer, 2002). Moreover, actors sharing oppositional points of view concerning the same argument being discussed can form an opponents' coalition. For each of the policies, a network analysis was conducted.

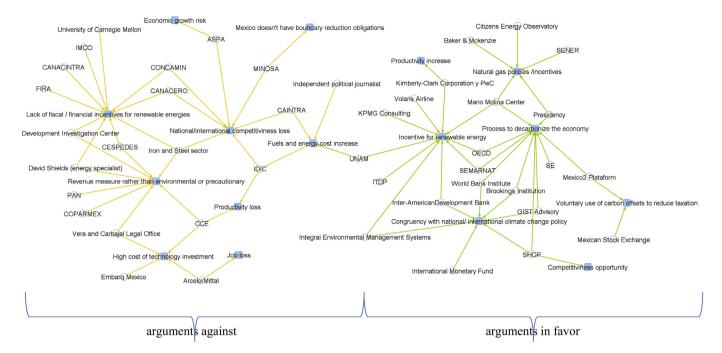
The importance of each actor depends on their hub centrality, which is used because we focus on the individual node's relation with other nodes. Following Leifeld and Haunss (2012) and Leifeld's (2013) methodology, we use a standardized measure that expresses each nodes contribution to the sum of all hub centrality values.

# 3. Results

# 3.1. Carbon tax network analysis

With regard to the coding of the interviews and the media discourse results in similar debates for and against the carbon tax policy, some actors complained about the possible outcomes from this tax, other actors considered it to be a good policy, and some actors even argued that it should be strengthened. The actors' networks and their positions in favor of or against the main arguments are presented in Fig. 1. The outstanding point in this network is the fact that arguments for and against are not associated, the negatives are on the left and the positives on the right. To compare

<sup>&</sup>lt;sup>3</sup> Due to space limitations, this paper analyzes only the carbon tax and the climate change law, but the analysis of renewable energy is available in (Rennkamp et al., 2017).



**Fig. 1.** Discourse network analysis of the coalitions in favor of or against the carbon tax. Source: Authors' own data. Fig. 1 depicts the coalitions against the carbon tax and their arguments in yellow, and those in favor in green.

these arguments, we reorganized similar discourses and summarized them in one new discourse or Meta framework. For example, the argument why some actors oppose the carbon tax is the lack of financial incentives to invest in renewable energy. On the other hand, those in favor say there is an incentive to invest in renewable energy. When the last set of actors use the argument that incentives are financial, both groups of actors have a coinciding but opposing view with the same argument. With this in mind, we can reduce the network in Fig. 1 to a coinciding debate framework with Fig. 2. As explained in the previous section, when there are more than two arguments that are shared among the actors, the results clarify the discourse coalitions according to (M. A. Hajer, Fischer and Forester, 1993). Thus, we are not looking at actual cooperation but at shared positions, meanings, and frames, as in (Rennkamp et al., 2017) and (M. Hajer, 2002). Five discourse coalitions emerge, of which three are in favor of and two are against the carbon tax. This means that of the 11 arguments about the impact of carbon tax in Fig. 1, only five were coincident between for and against positions; these are depicted in Fig. 2. These arguments are 1) compliance with international obligations, 2) costs, 3) economic competitiveness, 4) financial incentives, and 5) productivity. Three arguments are in favor of carbon offsets, decarbonized economy, and natural gas policy, and three are against due to job losses, revenues, and decreased economic growth.

Compliance with international obligations: a strong coalition in favor of the carbon tax includes academia, international organizations, consulting firms, the President's office, and federal government offices. They agree that this policy is congruent with the national and international commitments that Mexico has made and that the carbon tax will provide policies and incentives to improve production processes, especially since natural gas is not included in this taxation and is the primary energy resource that is used in industrial production.

Costs: Arguments against the tax stated by the chambers of industry and the National Autonomous University of Mexico (UNAM) assert that this tax implies a loss in productivity because fuel and energy costs increase with this tax. However, the UNAM

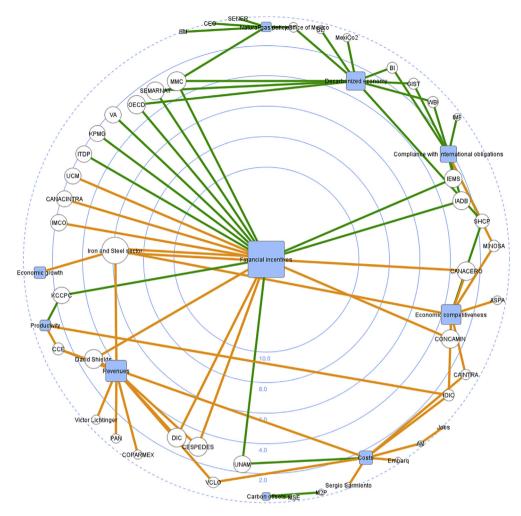
supports the tax to the extent that it could be an incentive for industries to search for ways to invest in renewable energy.

Economic competitiveness: The chambers of industry and the iron and steel sector integrate the two coalitions that are against the carbon tax. These actors have criticized the lack of financial incentives and point to the probability of reduced economic revenues and decreased competitiveness.

Financial incentives: Other coalitions, such as those involving the ministries directly involved in the implementation and results of the carbon tax, international institutions, research centers, Mexi-Co2 Platform, the financial sector, and environmental NGOs, see that there are financial incentives for the carbon tax and that this instrument will help to decarbonize the economy and provides the option of mitigating GHG emissions, as well as compensating for the tax with carbon credits through the Clean Development Mechanism.

These actors view the carbon tax as an opportunity for competitiveness because of the voluntary use of carbon offsets to reduce taxation. By contrast, the iron and steel sector holds a permanent position against the carbon tax and argues that this instrument is a revenue imposition, rather than an environmental or precautionary instrument, that does not provide fiscal and financial incentives for renewable energy. This discourse is also supported by several actors in academia, the chambers of industry, public sector, and the right-wing National Action Party (PAN), which argue that the tax will not decrease GHG emissions nor foment investments in new technologies.

Productivity: The iron and steel sector, industries, chambers of industry, and the transport sector consider this policy a risk to economic growth because it is very costly to invest in new technologies that decrease GHG emissions. The tax may generate job losses and increase prices on energy generation, bringing a loss of competitiveness at a national and international level. Northern Mining (MINOSA), in particular, argues that Mexico does not have a legally binding reduction obligation for GHG emissions. Thus, the actors who are charged with paying the tax, such as the industrial sector, are opposed to the carbon tax, whereas international



**Fig. 2.** Discourse network analysis with a metaframework of the coalitions in favor of or against the carbon tax. Source: Authors' own data. In Fig. 2, the coinciding arguments in favor of and against are depicted.

organizations, public ministries, and academia are in favor of the carbon tax.

# 3.2. GLCC analysis

Applying the same methodology, Fig. 3 shows the actors and their arguments in favor of and against the GLCC. Actors who were in favor had a positive discourse regarding economic competitiveness, economic growth, and compliance with international obligations and national commitments. Against the GLCC was the argument about productivity loss and disadvantage of location. The analysis results in five discourses that are shared by the actors who were for and against the GLCC: 1) costs, 2) emissions reduction, 3) jobs, 4) the legal framework, and 5) the political framework. Three of these discourses relate to the legal and political frameworks, and only two discourses involve economic issues (costs and jobs). Results are shown in Fig. 4.

The Energy Commission of the Chamber of Deputies argues that technological adaptation can be costly and should be a long-term goal but considers that the GLCC could be an opportunity to have a green economy that is based on low carbon emissions and sustainable development principles. This argument is supported by diverse actors in academia, research institutes, international organizations, and federal government. The National Governors' Conference (CONAGO) argues that the law will help to decrease

Mexico's high vulnerability to climate change effects.

COPARMEX, CONCAMIN, and the Business Coordinating Council (CCE) argue that the law will bring both productivity and job losses and decrease foreign investments, but also that it can be an opportunity for industries to become more competitive; because other types of international investment might be feasible. This last positive feature of the law is also supported by the Mexican Cement Chamber (CANACEM), the Global Commission on Economy and Climate, EcoSecurities, and the national party that is in power, the Institutional Revolutionary Party (PRI). The Mexican Institute of Competitiveness ((IMCO) states that the law will provide economic growth and job creation.

In the legal framework argument, three actors of the chambers of industry had a negative opinion initially concerning the implications of this law, and they made their support conditional on modifications to ensure that it would not curb economic development in the country. These actors argued that legal obligations and goals could lead to the closing of enterprises because some businesses in the industrial sector do not have the ability to comply with the regulations; the GLCC establishes regulations that are more rigid than the regulations in the countries of the actors' commercial competitors, and iron manufacturers could not manage higher prices that reduce competitiveness, decrease profits, and limit production. The actors argue that the law has discretional sanctions that do not consider the different priorities of the actors

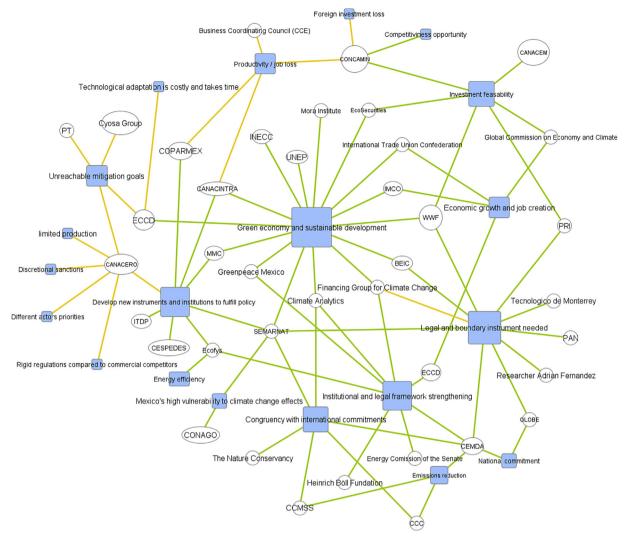


Fig. 3. Discourse network analysis of the coalitions in favor of or against the GLCC. Source: Authors' own data.

involved and that the law has unattainable mitigation goals. This argument is supported by the Labor Party (PT) and the construction company Cyosa Group. The Mario Molina Center (MCC) indicates that the GLCC adds an institutional and legal framework that strengthens the policies that contribute to the decrease of GHG emissions.

In the political framework, the PRI, PAN, academia, international organizations, and federal government support the law because they see it as a legal and foundational instrument that has been necessary for several years and has now been established. They also argue that the law is a national commitment that will achieve GHG emission reductions. The civil society organizations and transport sector agree that the law's goals and policies are congruent with Mexico's international commitments, developing new instruments and institutions to fulfill the stated policies. The coalition in favor of the GLCC mainly comprises environmental NGOs and international environmental institutions, whereas the opponents belong to the chambers of industry and the iron sector.

#### 4. Discussion

This study shows that the approval and adoption of the GLCC and the carbon tax were shaped by the arguments of two main

coalitions with opposing views due to their interests and incentives: on the one hand, the federal government, and on the other, the chambers of industry. The first coalition's main interest is long-term environmental sustainability that involves national and international commitments related to GHG emissions targets and energy efficiency. The second coalition's main incentives are financial and economic.

From the arguments and actors analyzed, it can be inferred that the carbon tax initiative and GLCC are not seen as instruments to encourage the reduction of CO2 emissions, nor to promote the use of alternative energies, such as renewables that could tackle the climate change and environmental problems. Actors see the motives for these policies as merely economical. The opponents may be right concerning the carbon tax, as it is now designed it is a pure tax revenue, the revenues obtained from it are not used to start a climate fund to promote mitigation nor adaptation projects (Huesca R. & Lopez, 2016), therefore the tax design does not foster arguments in favor of the carbon tax. The private sector has emphasized the need to create economic mechanisms to encourage investment in renewable energy and efficient processes and to redirect regressive subsidies for the promotion of sustainable public transportation systems and other tangible benefits (Shields, 2013, 2014).

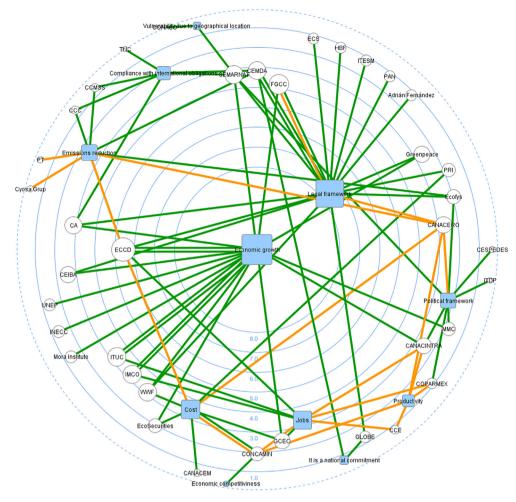


Fig. 4. Discourse network analysis with a metaframework of the coalitions in favor of or against the GLCC. Source: Authors' own data.

Two factors allowed for the success of and a consensus on the GLCC law. One key factor was the extended period, which was almost four years, to negotiate and discuss this law among the main actors which provided a chance to make some amendments to the law's white paper to integrate most of the sectors' concerns and to establish an initial legal framework. The second factor that permitted the passage of the law was the coalition that the federal government made with NGOs and international organizations, which created strong social support. This law also establishes specific long-term goals, but the achievement of these goals is conditional, and they are aspirational. This adjustment provided more planning time to the industrial sectors that could be directly affected by the law's enforcement. This adjustment also establishes the country's mitigation commitment, written in a legally binding document and supported by international organizations and social and environmental groups. But actors in favor of the GLCC strongly believe that this is the way to enforce the international commitments. The lesson for other countries that are willing to reach the NDC previously countersigned in the INDC (SEMARNAT., 2015) is that having a GLCC allows international commitment to be internalized, making them compulsory, so that their implementation becomes obligatory, and this process requires support from the private sector which in many developing countries could be the strongest opposing force.

# 5. Conclusion

This paper analyzes the key coalitions and arguments through which the carbon tax and the GLCC were discussed and adopted in Mexico. For the carbon tax policy, the analysis shows two main actor coalitions. On the one hand, the industrial sector argues that the carbon tax will only benefit the government by increasing its revenue, that there is a lack of fiscal and financial incentives for the private sector, and that this lack may create losses in competitiveness and jobs that could decrease economic growth. On the other hand, a coalition was formed by international organizations and the federal government whose discourse indicates that this policy will help to decarbonize the Mexican economy and create incentives to invest in renewable energy because these measures are congruent with international policies and Mexico's agreements. These results are similar to those of South Africa and Thailand where the discussion spins around economic arguments, and environmental augments are hardly found in developing countries (Rennkamp et al., 2017). This might explain why with just economic arguments and not environmental, one key and powerful ministry, such as the SHCP, with the support of international economic organizations, can impose fiscal taxation with little support from the other actors who will be affected by it. The reason for this ability may be that tax revenues do not represent a high cost for the private sector because the cost can be passed on to the final consumers (see Chapa and Ortega-Diaz, 2017), and because of the technology

investment and transitions that these industries have made to substitute high carbon fuels with natural gas, a fuel that is exempted from taxation.

In this analysis two key factors made it possible for opposite coalitions to agree on the GLCC law: 1) an extended period of negotiation, which resulted in amendments to the white paper of the GLCC, and 2) a strong coalition of the government with NGOs, which created social support in favor of the law. At the closing of this investigation, the Congress issued a memo with the intention to make modifications to the GLCC, with the purpose of adjusting it to the commitments acquired when ratifying the Paris Agreement (Senado, 2017). Given this scenario of future law amendment, it will be important to socialize this research with the actors involved in the decision making process.

It is important to note that this research was done before the adoption of the Paris Agreement (UNFCCC, 2015). However, the interactions among the actors, which are demonstrated in this document, could serve as a basis for reflection in future amendments to the GLCC and serve as an example to those countries that are in the process of developing laws and other fiscal instruments to reduce CO2 emissions. The process of policy making requires the participation of all the actors involved, especially those who may be directly impacted by those decisions or legislations. This research was possible by using a network analysis that facilitates reducing complex interactions into bipartite links between actors and frameworks, and that reflects positions on law initiatives. In terms of climate policy design, this research shows that to have an effective implementation of international commitments, like those in the Intended National Determined Contribution (SEMARNAT. 2015) authorities should promote better and longer periods of interaction and coordination among those actors involved.

In general, we agree that Mexico has taken decisive and important steps to build a legal and policy framework for climate change mitigation that has obtained international approval. However, the construction of this framework has been different for each policy. The problem is not decision making but a lack of coordination between the relevant actors. This lack of coordination seems to remain a problem, although decision making occurs in small groups with strong negotiation capabilities and sufficient resources to influence the results.

# Acknowledgments

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# Appendix. Actors

**Academia**: Monterrey Institute of Technology and Higher Education, University of Carnegie Mellon, National Autonomous University of Mexico (UNAM).

**Civil society organizations**: Civic Collaboration Centre (CCC), Mexican Civil Council for Sustainable Silviculture (CCMSS),

Financing Group for Climate Change, Greenpeace Mexico, The Nature Conservancy, Institute for Transport and Development Policies (ITDP), Citizens Energy Observatory.

Consulting Firms: EcoSecurities, Biodiversity and Environment Interdisciplinary Center (BEIC), Kimberly-Clark Corporation, PwC, Baker McKenzie, KPMG consulting, MexiCO2 platform, Integral Environmental Management Systems, Brookings Institution, Embarq Mexico, Development Investigation Center, Vera and Carbajal Legal Office, Industrial Development and Economic Growth Institute (IDIC), GIST Advisory, consultants.

**Energy:** Energy Commission of the Chamber of Deputies (ECCD), energy specialists, energy and environment specialists.

**Financial Sector:** Mexican Stock Exchange, Secretariat of Finance and Public Credit of Mexico (SHCP), Agricultural Trust Funds (FIRA).

**Government**: Federal Superior Auditor (ASF), Mexico's Environmental Secretariat (SEMARNAT), National Governors' Conference (CONAGO), Mexican National Commission of Energy Efficiency (CONAE), Electric Research Institute, the president's office, Ministry of Energy (SENER), Ministry of Economics (SE), National Institute of Ecology and Climate Change (INECC).

Industry: Mexican Iron and Steel Industry Chamber, National Chamber of Commerce and Transformation (CANACINTRA), The Mexican National Chamber of Industry (CONCAMIN), The Mexican Cement Chamber (CANACEM), The Mexican Institute of Competitiveness (IMCO), Cyosa Group, The Mexican Iron and Steel Industry Chamber (CANACERO), Norten Mining, Union Association of Flight Attendants of Mexico (ASPA), Volaris airline, Business Coordinating Council (CCE), Nuevo León State Manufacturing Industry Chamber (CAINTRA), Industrial Development and Economic Growth Institute (IDIC), The Mexican Employers' Confederation (COPARMEX), Petrol Station Entrepreneurs Mexican Association, ArcelorMittal, Mexican Employers' Confederation (COPARMEX), Altos Hornos de México (MINOSA), the iron and steel sector.

International organizations: World Wildlife Fund (WWF), Organization for Economic Cooperation and Development (OECD), International Monetary Fund (IMF), Inter-American Development Bank (IADB), World Bank Institute (WBI), The Global Legislators Organization (GLOBE), United Nations Environmental Programme in Mexico (UNEP), Heinrich Böll Foundation, Ecofys, Global Commission on Economy and Climate, Climate Analytics, International Trade Union Confederation.

Media: Independent political journalists.

**National Parties:** National Action Party (PAN), Labor Party (PT), Institutional Revolutionary Party (PRI).

**NGOs**: Mexican Environmental Law Center (CEMDA).

**Parliamentarians**: Congressional Commission, Senate, Environment Commission of the Chamber of Deputies, Energy Commission of the Chamber of Deputies, Energy Commission of the Senate.

**Research Institutes**: Commission of Private Sector Studies for Sustainable Development (CESPEDES), Mora Institute, Mario Molina Center (MMC), independent researchers.

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